

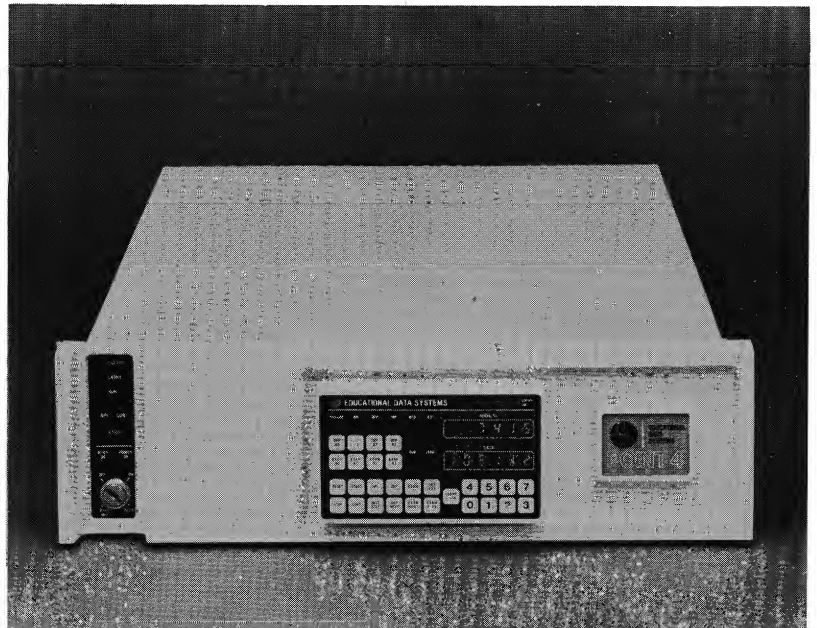
POINT 4 COMPUTER PRODUCT BRIEF

FEATURES

- Memory up to 64K 16-bit words on the same printed circuit board with the central processor
- High-speed 400-nanosecond cycle time MOS memory
- RAM available in either 32K or 64K words
- High-speed instruction processing (400 ns add or jump, 800 ns load)
- Standard or high-speed data channel
- Emulations options
- 7-slot modular chassis and separate power supply
- Industry compatible instruction set
- Full IRIS Operating System and BASIC language support
- Auxiliary high-speed subroutine RAM (Writable Control Store option)
- High Speed interprocessor bus (option)
- Detachable Operator Control Unit (option)
- Memory parity error halt (option)
- Main memory battery backup (option)

DESCRIPTION

The POINT 4 Computer is a high-speed general-purpose minicomputer with a versatile, industry standard instruction set. Packaging of the central processor and up to 64K 16-bit words of semiconductor memory on a single printed circuit board decreases instruction execution time to one 400 nanosecond memory cycle. In addition to a standard I/O structure, accommodating a wide range of industry-compatible peripheral controllers, the POINT 4 Computer features a high-speed interprocessor bus. This bus permits computer to computer communication at speeds up to two megawords per second. A detachable operator control unit, auxiliary writable control store memory and the availability of the Interactive Real-Time Information System (IRIS) Operating System add to the convenience and versatility of the POINT 4 Computer. These features make the POINT 4 Computer well suited to OEM applications in business data systems, data communications, and control systems.



ARCHITECTURE

The CPU board contains the central processor logic, up to 64K words of RAM, an APL PROM, a Self-Test PROM, a high-speed interprocessor bus and Writable Control Store. Memory cycle time is 400 nanoseconds, with instructions executed at that rate. The APL PROM contains a powerful and convenient octal debugger. The Self-Test PROM executes diagnostics and reliability tests on both CPU and memory. The high-speed interprocessor bus is separate from the regular I/O bus and allows two CPU's to communicate with each other at a speed of two megawords per second.

The CPU is housed in a seven slot front loading chassis with a separate power supply, which reduces both heat and fan noise in the CPU chassis and gives greater installation flexibility. A second CPU may be housed in the same or an adjacent chassis, when the interprocessor communication option is selected.

PERFORMANCE

Word Length: 16 bit

General Purpose Accumulators: 4

Memory Cycle Time: 400 nanoseconds

RAM Access Time: 200 nanoseconds

Microprogram Cycle Time: 100 nanoseconds

Crystal-controlled Clock Rate: 30 MHz

Memory Options: 32K or 64K words

Standard Data Channel:

Input — 1000 nanoseconds

Output — 1600 nanoseconds

High Speed Data Channel:

Input — 800 nanoseconds

Output — 1200 nanoseconds

Interrupt Response: 1200 nanoseconds

High-speed Interprocessor Bus Transfer Rate:
2 Megawords/second.

Instruction Execution Times:

JMP/JSR	400 nanoseconds
ISZ/DSZ	1100 nanoseconds
If skip occurs add	0 nanoseconds
LDA/STA	800 nanoseconds
For indirect addressing add	400 nanoseconds
ADD/SUB/MOV/INC/AND/ NEG/COM/ADC	400 nanoseconds
If skip occurs add	0 nanoseconds
I/O Input	700 nanoseconds
I/O Output	1200 nanoseconds
For S, C or P add	600 nanoseconds
I/O Skip	900 nanoseconds

DEBUGGING CAPABILITIES

The POINT 4 system features a built-in software debugger and a hardware self-test. The APL switch loads the APL PROM into the top 1000 words of RAM. The APL program contains an octal debugger which offers software debugging and examination of the following system functions: accumulators, program counter, memory entries, memory searches, movement of data blocks in memory, establishment of addressing offset, reading and verifying of binary paper tapes, and execution of Automatic Program Load from a direct memory access device. All operations can be performed from the master terminal, including transfer of control to a user's program.

Activation of the APL switch in combination with the Self-test switch, will result in loading of the Self-Test PROM. The Self-test program performs a complete check of hardware functions, and executes a worst-case memory test. It can be used either as a one pass hardware verifier or as a continuous reliability test.

INSTRUCTION SET

The POINT 4 provides a 16-bit multi-function instruction set which is compatible with the EDSI IIRIS Operating System. Memory reference instructions move data between memory and accumulators and modify program flow using direct, relative, indexed, and/or indirect addressing. Memory reference instructions are: load accumulator, store accumulator, jump, jump subroutine, increment and skip if zero, and decrement and skip if zero.

Arithmetic and logical instructions execute one of eight basic functions, modify the operand, shift the result, and test the result in only one cycle. Arithmetic and logic instructions are: add, subtract, move, increment, negate, complement, add complement, and logical-and.

Input/output instructions transfer data and control signals between the processor and peripherals. Input and output are via 16 bidirectional data lines and use three control strobes each. There are instructions to skip if a device is 'Done' or 'Busy'.

OPTIONS

The following options are available to enhance the POINT 4 computer system:

1. Main memory size is available in 32K words or 64K words, with 128K words available through purchase of dual processors.
2. Main memory parity error halt option allows detection of parity problems in memory transfers.
3. Main memory battery backup is available to maintain the contents of memory for at least four hours in the event of a power failure.
4. An operator control unit is available which can be attached or removed without turning off the CPU. The control unit may be attached to the CPU front panel or extended by cable to a convenient working surface.
5. A high-speed interprocessor bus allows two computers to load data into each other's main memory at a rate of 2 megawords per second.
6. An auxiliary high-speed subroutine RAM (WCS) which can be loaded from main memory is available for use to implement stack macros, to perform hardware multiply and divide, to process parity errors, to handle EDSI Byte Manipulation Macros (speeds up IRIS), or to handle customer designed macros. The WCS executes the same instruction set as that used in main memory.

OPERATOR CONTROL UNIT OPTION

In addition to the basic controls and indicators on the POINT 4 processor chassis, an operator control unit is available which enhances operator access to the processor. This removable control unit can be attached to the front panel of the POINT 4 chassis or can be extended with a ribbon cable to any convenient working surface. The compact unit contains all displays and switches necessary to monitor and control the processor. Displays include two octal displays for address and data, and eight light emitting diode indicators monitoring various areas of processor activity. Sealed membrane switches provide processor control, including octal data entry keys and a clear data button. Memory is accessible through control switches to examine and deposit in memory, as well as to enable the extended addressing mode (64K words). Accumulators are accessible through examine and deposit controls. Program execution controls include reset, start, stop, continue and instruction step. An Automatic Program Load (APL) switch is also included on the operator control units.

PERIPHERALS AND COMMUNICATIONS

A complete range of POINT 4-compatible peripherals is available from various manufacturers. Peripherals available to interface with the POINT 4 are: diskettes, fixed head discs, cartridge discs, cassettes, paper tape drives, teletypes, line printers, paper tape punches, plotters and card readers. Communications hardware includes high-speed synchronous and asynchronous multiplexor systems, direct IBM 360/370 interfaces and intercomputer connections. Input/output equipment includes A/D and D/A converters, digital I/O and general-purpose interfaces.

SOFTWARE

EDS has available a full line of POINT 4-compatible software systems including the following:

- The Interactive Real-Time Information System (IRIS) Operating System and BASIC language support.
- Infotrieve Data Base Management System
- Informat Report Writing System
- Management, Accounting and Control System (MACS) business software.

POINT 4 systems also support a significant array of customer developed software.



CUSTOMER SUPPORT

The POINT 4 system is backed by a one-year maintenance warranty. If execution of the diagnostics in the Self-Test PROM indicates a hardware problem a replacement board will be supplied. In addition to User and Maintenance Manuals, both user and maintenance training are available.

An IRIS Subscription Service is available to all IRIS licensees. Subscribers may telephone EDSI for technical information related to IRIS. Subscribers receive all updates, corrections and new releases of the licensed software. Also provided are regularly scheduled IRIS seminars which cover marketing, IRIS organization, system installation and support, and application programming.

SPECIFICATIONS

ELECTRICAL

AC Voltages

105 to 124 VAC, 5 amps max.,
47 to 440 Hz.

210 to 150 VAC, 2.5 amps max.,
47 to 440 Hz.

AC Power Consumption

625 watts max.

DC Power Supply Output

35 amps at +5V, $\pm 15V$, $\pm 12V$, $-5V$

MECHANICAL

Processor Chassis

Dimensions: 5.25 inches high, 19.0 inches wide,
17.5 inches deep

Weight: 30 pounds

Power Supply Chassis

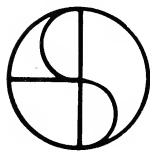
Dimensions: 5.25 inches high, 19.0 inches wide,
8.0 inches deep

Weight: 30 pounds

OPERATING ENVIRONMENT

Temperature Range: 0 to 50° Celsius

Relative Humidity: 10 to 90% non-condensing



Educational Data Systems

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PRODUCT CATALOG



EDUCATIONAL DATA SYSTEMS

JUNE 1, 1979

Educational Data Systems —

Tool Builders for the Minicomputer System Industry

Educational Data Systems began operation in 1969 by developing software and hardware tools for the emerging minicomputer industry. The company and its product line have grown steadily, until today we offer operating systems, languages, a data base management system, a word processing system, application software, data communication equipment, high-speed micro-programmable processors for use with NOVA*-type minicomputers, and our own high performance computer, the POINT 4.

Educational Data Systems views the minicomputer field from a different perspective than do most other mini manufacturers, who, almost invariably, have built the computer first and then struggled over a period of years to develop compatible software. We started by developing software

for existing computers, and this extensive experience disclosed many ways in which the hardware could be improved. The company designed the POINT 4 and related equipment products to realize these improvements, to enhance the performance of our extensive software base, and to provide an advanced architecture for future software developments in data management, data communication and distributed processing applications.

At Educational Data Systems, the emphasis is on developing and building sound, fundamental system tools with which our customers can configure proprietary systems that excel in the highly competitive field of multi-terminal, small computer systems.

*"NOVA" is a registered trademark of Data General Corporation.

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The POINT 4™ Computer

The POINT 4 Computer is a high-speed general-purpose minicomputer with a versatile, industry standard instruction set. The POINT 4 performs a complete arithmetic instruction, including instruction access, in 400 nanoseconds. The central processor, up to 128K bytes of directly addressable semiconductor memory and all options are packaged on a single printed circuit board. In addition to a standard I/O structure, accommodating a wide range of industry-compatible peripheral controllers, the POINT 4 Computer features a high-

speed interprocessor bus. This bus permits computer to computer communication at speeds up to four megabytes per second. A detachable operator control unit, auxiliary programmable control store memory and the IRIS (Interactive Real-Time Information System) Operating System add to the convenience and versatility of the POINT 4 Computer. These features make the POINT 4 Computer well suited to OEM applications in business data systems, data communications, and data base management.



OPTIONS

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Main memory size of 64K bytes or 128K bytes. 2. Main memory parity error, which detects errors in the main memory, halts the processor and indicates an error via the PARITY lamp on the mini-panel. 3. Main memory battery backup, which maintains the contents of memory for at least two hours in the event of a power failure. A Power Monitor Auto-Restart circuit restarts the CPU automatically when AC power is restored. | <ol style="list-style-type: none"> 4. A front panel control unit, which can be removed without tampering on the CPU. The control unit may be attached to the CPU front panel or extended by cable to a convenient working surface. 5. A high-speed interprocessor bus, which allows two computers to transfer data into each other's main memory at a rate of four megabytes per second. 6. A Programmable Control Store (PCS) with 100 ns cycle time. The PCS can be used to extend the instruction set to emulate other machines or to perform complex operations such as decimal arithmetic, string processing and stack operations at high speeds. |
|--|---|

The POINT 4™ Computer

MAINTAINABILITY AND RELIABILITY

MINICONTROL PANEL — Contains a lockable power switch, APL (Automatic Program Load), CONTINUE and STOP control switches, and indicator lamps for RUN, CARRY, PARITY and BATTERY MONITOR. All other control and monitoring functions are normally performed through the Virtual Control Panel.

VIRTUAL CONTROL PANEL — Software, loaded automatically when the APL switch

is depressed, permits all monitoring and control functions to be performed in octal from a master CRT terminal.

BUILT-IN DIAGNOSTICS — By pressing a button, an operator loads diagnostic programs from an on-board PROM to test all CPU functions and every cell of memory with a worst-case memory pattern.

JUMPER SAVER LOGIC — Logic on the back-plane eliminates the need to jumper data channel and interrupt priority signals around unoccupied board slots.



SYSTEM CONFIGURATIONS

MODEL	DESCRIPTION	PRICE \$ US	DISCOUNT GROUP
4/1	400ns CPU, 64K Bytes Memory, Self-Test Diagnostics, Virtual Front Panel	3240	20
4/2	400ns CPU, 128K Bytes Memory, Self-Test Diagnostics, Virtual Front Panel	4680	20
4/3	400ns CPU, 64K Bytes Memory, Self-Test Diagnostics, Virtual Front Panel, Chassis, Mini-Panel, Power Supply	5540	20
4/4	400ns CPU, 128K Bytes Memory, Self-Test Diagnostics, Virtual Front Panel, Chassis, Mini-Panel, Power Supply	7300	20

SYSTEM OPTIONS

6010	Memory Parity, 64KB Memory	250	20
6020	Memory Parity, 128KB Memory	300	20
6310	Chassis: 7 Slots, Fans, Mini-Panel	1300	20
6210	Power Supply, 350 Watts	1690	20
6250	Battery Backup (2 Hours at 128KB)	350	20
6060	High-Speed Inter-Processor (HIP) Bus ¹	500	20
6061	HIP Bus Cable ¹	100	20
6150	Operator Control Unit (OCU) ²	900	20
6080	Programmable Control Store ¹ (PCS)	400	20

¹Available First Quarter 1980

²Available September 1979

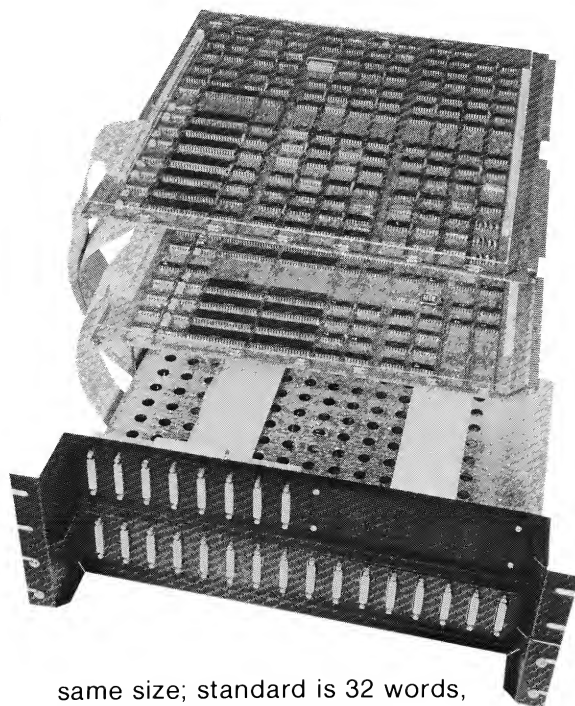
HARDWARE

Mighty Mux™ DMA Multiplexer

The EDSI Mighty Mux DMA (Direct Memory Access) multiplexer is a general purpose communications front end for POINT 4 and NOVA*-type computers. From 4 to 128 peripheral devices can be interfaced to the processor via use of the DMA instead of the programmed I/O channel, thus greatly reducing I/O overhead. Interrupts are generated to the processor only by: error conditions, buffer full or empty conditions and special control characters which may be specified by the customer. The Mighty Mux consists of a Model 310 basic multiplexer with optional expansion boards for additional asynchronous (Model 301) and SDLC synchronous (Model 302) ports. Model 310 is available as either a 4-port (310-A4) or an 8-port (310-A8) controller. The 310 has, as standard features, a Real Time Clock, 4 or 8 asynchronous serial ports which can handle CRTs, printing terminals, serial line printers and modems. Extra status and control lines on each port can be used to control line printers, modems and non-standard terminals. These features eliminate separate interface boards required in competitive multiplexer systems, thus reducing the number of slots required.

The following options are available on the Mighty Mux Multiplexer. All options are "no cost" unless pricing is indicated in parentheses.

1. Master TTY Mode: Permits port 0 to be used as the master terminal (device codes 10 and 11) or as a time shared port. IORST enables Master TTY mode; DOC-, MUX turns on the mux, changing port 0 to time shared mode.
2. On-Board Power Option (310-PS): Permits +12V to be derived from the computer backplane. 340-xx supply required for more than 8 ports. Customer must assure connection and availability of sufficient current from CPU power supply (125ma from VINH, 250ma from -15V). Not available with Nova-3; Eclipse requires modifications. (\$60)
3. Port Block Size Option: Each port has a control block. All control blocks are the



same size; standard is 32 words, optional are 16 or 8 words.

4. Special Character Set Option: A 256 x 4 PROM determines which characters will produce interrupts. All values are expressed in octal. Standard (Option #0): All ASCII characters <40 or >173 (testing only 7 bits) are "special" characters, for both input and output.
 Option #1: 3,4,31. (Both Input and Output)
 Option #2: 0,4,15,21,23. (Both Input and Output)
 Option #2a: 136. (Both Input and Output)
 Option #3: Input: 0,3,4,5,6,10,14,15,25,27,30,31,32,33
 Output: 0,3,4,5,6,14,15,25,27,30,31
5. MSB (Most Significant Bit) in ASCII Mode (Input only): When "Special Character Interrupt" is requested by the software, the Mux can automatically set the MSB of the incoming character to 1.

Mighty Mux™ DMA Multiplexer

HARDWARE
FOR POINT 4 AND NOVA-TYPE COMPUTERS

CONFIGURATION GUIDE

Number of Ports Required		Basic MUX Model 310		Asynchronous Expansion Model 301		Synchronous Expansion Model 302		Panel Model 320	Conn/Cable Assembly		Z Cable Model 324	Power Supply		
		-A4	-A8	-A8	-A16	-A24	-S2		-S4	-S6			-S8	Model 322
Async	Sync										-2	-4		
4	0	1							1	1				340-32 or 310-PS
8	0		1						1	1				340-32 or 310-PS
16	0		1	1					1	2			324-1	340-32
32	0		1			1			2	4			324-1	340-32
8	2		1				1		1	1	1		324-1	340-32
8	6		1					1	2	1	1	1	324-1	340-32
56	2		1			2	1		4	7	1		324-3	340-64

EXAMPLE: A 32 port asynchronous multiplexer would include one 310-A8, one 301-A24, two 320 panels, four 322 connector/cable assemblies, a 324-1 interboard (Z) cable, and a 340-32 power supply.

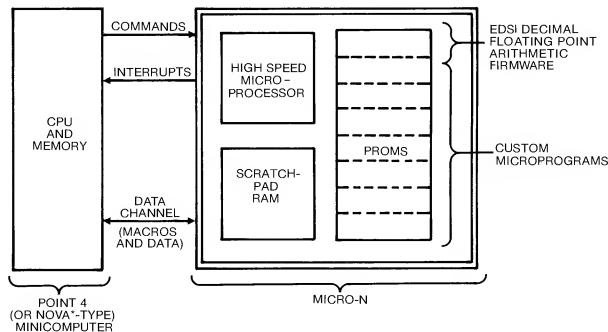
MODEL	DESCRIPTION	PRICE \$ US	DISCOUNT GROUP
310-A4	4 Port Multiplexer (Nonexpandable)	1600	20
310-A8	8 Port Multiplexer Expandable to 128 Ports	2500	20
301-A8	8 Port Asynchronous Expansion Board	1100	20
301-A16	16 Port Asynchronous Expansion Board	1850	20
301-A24	24 Port Asynchronous Expansion Board	2600	20
302-S2	2 Port Synchronous Expansion Board	1800	20
302-S4	4 Port Synchronous Expansion Board	2400	20
302-S6	6 Port Synchronous Expansion Board	3000	20
302-S8	8 Port Synchronous Expansion Board	3600	20
320	Junction Panel for Two Connector/Cable Assemblies	50	20
322	Connector/Cable Assembly for 8 Ports (EIA)	225	20
322-CL	Connector/Cable Assembly for 8 Ports (EIA and Current Loop)	300	20
323-2	Connector/Cable Assembly for 2 Synchronous Ports	200	20
323-4	Connector/Cable Assembly for 4 Synchronous Ports	375	20
324-N	Interboard (Z) Cable. N = No. of 301 and 302 Boards	50+40N	20
340-32	Power Supply for Up to 32 Asynchronous Ports ³	200	NA
340-64	Power Supply for Up to 64 Asynchronous Ports ³	280	NA
340-128	Power Supply for Up to 128 Asynchronous Ports ³	360	NA
342-1	Power Supply for Current Loop Operation — 32 Port	360	NA
342-2	Power Supply for Current Loop Operation — 48 Port	440	NA
342-3	Power Supply for Current Loop Operation — 64 Port	520	NA
342-4	Power Supply for Current Loop Operation — 128 Port	600	NA
310-PS	Power Supply Option for 310-A4 or 310-A8. (Replaces external supply.)	60	20
	(See Mighty Mux Optional Features)		
900	Multiplexer Test Cable, Synchronous	45	NA
901	Multiplexer Test Cable, Asynchronous	45	NA

³NOTE: For the purpose of determining 340-type power supply requirements, each synchronous port is equivalent to two asynchronous ports.

Micro-N Processor Hardware Training Hardware Documentation

The Micro-N is a microprogrammable computer on a 15" x 15" board that occupies one slot in a POINT 4 or NOVA-type mini-computer. The Micro-N enhances the computing power of the main processor by implementing user defined macro instructions. Suitable applications include floating point decimal arithmetic, string processing, and graphics processing. The Micro-N

contains up to 8 bytes of PROM for micro-programs and 128 bytes of RAM for temporary scratch-pad storage. Most Micro-N operations take place in only 100ns including instruction fetch and execution. Firmware for extended-precision, floating point, decimal arithmetic as used in IRIS is available from Educational Data Systems.



MODEL	DESCRIPTION	PRICE \$ US	DISCOUNT GROUP
400	Micro-N with Floating Point Arithmetic Firmware	2250	20
400-1	Micro-N without Floating Point Arithmetic Firmware	1850	20

Hardware Training

Educational Data Systems conducts regularly scheduled seminars on hardware products. A training schedule is available that describes course registration procedures, fees and the scheduled course dates. Complete product documentation is provided as part of each course. Group training on site is negotiable.

HARDWARE COURSES AVAILABLE INCLUDE:

POINT 4

The two-day POINT 4 computer course

stresses use of diagnostic tools to pinpoint errors. Firmware and software debuggers are discussed. Architecture and computer options share course time with maintenance subjects.

MULTIPLEXER

The one-day Multiplexer maintenance course is equally divided between operational theory and maintenance. Structure and use of diagnostic tools are stressed. Theory of Operations and Schematics documents are provided with the course.

Hardware Documentation

MODEL	DESCRIPTION	PRICE \$ US	DISCOUNT GROUP
1045	POINT 4 User's Reference Manual	15	30
1046	POINT 4 Diagnostic Reference Manual	10	30
1015	MIGHTY MUX User's Manual (POINT 4 and NOVA)	7	30
1028	MIGHTY MUX Diagnostic Manual (POINT 4 and NOVA)	7	30
1043	MIGHTY MUX RDOS Driver Reference Manual	7	30
1025	MICRO-N Programming Manual	7	30
	Educational Data Systems Product Catalog	—	NA
	Educational Data Systems Binder (2")	8	NA

OEM Equipment Purchase Agreement Equipment Warranty

OEM EQUIPMENT PURCHASE AGREEMENT SUMMARY

EDSI offers two types of OEM purchase agreement: a "Blanket Agreement" and a "Staircase Agreement."

Both agreements provide for an "ordering period" of 24 months and a "delivery period" of 27 months.

The Blanket Agreement provides a fixed discount level based upon a specified level of purchases by the Buyer during the term of the agreement. EDSI reviews the Buyer's performance at six month intervals during the term and adjusts the discount level to reflect the actual performance of the Buyer. EDSI does not bill back for unrealized expectations of the Buyer but encourages realistic order projections.

The Staircase Agreement provides for discounts as earned by actual orders from the Buyer. Increasing numbers of orders received and acknowledged by EDSI provide for increasing discount levels.

At the option of the Buyer, the Staircase Agreement may be renewed once as a Blanket Agreement. Under the renewal prices are the standard EDSI prices at the time of the renewal, and discounts are at the maximum level achieved by the Buyer under the Staircase Agreement

EQUIPMENT WARRANTY

All equipment manufactured by Educational Data Systems is covered by a full one-year factory warranty. All transportation and in-transit insurance charges to send the product to EDSI are paid by the Buyer. Similar charges to return the product to the Buyer are paid by EDSI.

Excepted from this warranty are items of equipment such as disc memories and printers that are purchased and resold by EDSI. In the case of such equipment, EDSI passes on the warranty of the manufacturer.

All warranties are contingent upon proper use and care of the products and do not apply to products that have been modified without EDSI's approval. Upon request, Educational Data Systems will loan a board or other subassembly to the customer during the period when a failed product is being repaired.

HARDWARE

IRIS Operating System

INTERACTIVE REAL-TIME INFORMATION SYSTEM

The Interactive Real-Time Information System (IRIS) is the most widely used independently supplied operating system for the POINT 4 and NOVA-type minicomputers. IRIS is a Multi-tasking information system that supports real-time tasks in foreground, timesharing tasks in midground, and batch processing tasks in background. These tasks are distinguished by over 1000 different priority levels, initialized according to relative importance of the tasks and modified dynamically to provide suitable response and throughput to each job.

Timesharing under IRIS is performed by the operating system itself, not by the language processors. This means that all processors and utilities can time share, allowing different users to enter, edit, debug, and run programs in various languages and use different utilities concurrently.

IRIS supports multiple languages, including Business BASIC, assembly language, editing and debugging language, INFOTRIEVE Data Base Management System, and INFORMAT Report Writer. It also supports a full range of utilities and data file structures.

IRIS operates on the POINT 4 Computer or on NOVA-type minicomputers with at least 32K bytes of memory, a disc and a real time clock, and a device 10/11 I/O terminal. The disc may be a floppy, cartridge, head per track or disc pack type, or the system may have any combination of these. IRIS will efficiently utilize additional random access memory to enhance system throughput. Some applications and configurations require more than 32K bytes of memory.

Additional IRIS features:

- Handles up to 32 users simultaneously
- Operates in as little as 32K bytes of RAM, but can utilize up to 128K bytes without requiring mapping
- File structures include: text, formatted, contiguous, indexed random files

- Combines multiple partitions and swapping of active programs
- Extensive file security for both programs and data
- Any number of logical units
- Facility Usage Accounting

BUSINESS BASIC

Business BASIC is particularly well suited to the fast, economical development of on-line, interactive, business and application-software. It is easily learned, is in wide use, and permits interactive programming/debugging.

In addition to the standard features of the BASIC language, Business BASIC has:

- Extended precision, floating point, decimal arithmetic
- Print Using for report generation using COBOL-like picture formats for columnar number alignment, blanking of leading zeroes, etc.
- CRT mnemonic characters used freely in Print and Print Using statements to simplify control of CRT functions
- Signal Statement for communication between one program and another
- Extended string processing, including string variables and expressions, literals, comparison, subscripting
- Phantom Ports for background tasks
- Statements to facilitate declaration and manipulation of all data structures supported by IRIS

Other features enhancing IRIS are:

- EDIT, a powerful disc-to-disc text editor. It is page oriented, allowing text files of any size. Editing is content oriented so that line numbers are not required. EDIT can be used to create and/or edit English text, BASIC programs, assembly language programs or any ASCII text file.
- ASSEMBLE, a disc-to-disc assembler that accepts NOVA-type assembly language from text files (e.g., from EDIT). The output object file is optional, and output may be to a line printer, a terminal or a text file.
- BISYNC Support Software for Data Communications (2780/3780 emulator).

Infotrieve Data Base Management System

Informat Report Writing System

INFOTRIEVE, used in conjunction with Business BASIC, is a Data Base Management System that permits a non-programmer to build, query, and manipulate IRIS files. The user can use INFOTRIEVE to search a file for records satisfying complex criteria, pursue links to other records in the same or in associated files, and produce screen displays or printed reports based on the selected data. The user can define a data base using INFOTRIEVE, or can apply INFOTRIEVE to an existing data base defined by Business BASIC.

Infotrieve features:

- Operates on formatted, contiguous and indexed random files
- Facilitates data base conversion
- Provides a complete set of file maintenance utilities
- Provides a flexible query capability and permits on-line modification of IRIS files
- Maintains its own protective security system and audit trail
- Is simple to operate

Records may be accessed in three ways: by record number, by directory key, or by searching through directory and/or data record contents. With each mode of access, any items in the displayed record may be instantly and easily changed provided the user is authorized to do so under the security system. INFOTRIEVE manages all formatting of displayed data including automatic paging.

INFORMAT is an interactive report writing system that permits a non-programmer to specify complex reports interactively at the terminal. It uses the search facilities of INFOTRIEVE to select desired records from a data base according to user-defined criteria. It then produces a report according to the user's specification.

Reports are first composed using a standard programming form. Through a series of questions and answer interactions at the terminal, the report parameters are then defined. These specifications are stored in a file. Any previously defined report may be recalled for printing at a later date, and the report generated will reflect the data currently in the system. Like INFOTRIEVE, INFORMAT requires the user to supply security authorization information before it displays any data.

MODEL	DESCRIPTION	PRICE \$ US	PREREQ	OEM SUB. SERVICE/YR	DISCOUNT GROUP
IRIS	Time Sharing Operating System with File Structures	2800		1000	11
BB	Business BASIC	800	IRIS	incl*	11
EDT	Edit	400	IRIS	incl	11
ASM	Assembler	400	IRIS	incl	11
BSC	BISYNC Support Software	400	IRIS	incl	11
XREF	BASIC Cross Reference Table Printer (One-time charge)	200	BB	incl	NA
INFO	INFOTRIEVE Data Base Management System	2000	BB	600	13
INFM	INFORMAT Report Writer	1000	INFO	incl	13

*The fee for items marked "incl" is included in the fee listed above.

SOFTWARE
POINT 4 AND NOVA-TYPE SYSTEM SOFTWARE

Management Accounting and Control System (MACS)

The Management, Accounting and Control System is an integrated set of programs written in Business BASIC to operate under the IRIS time sharing operating system.

MACS is an on-line, interactive system. It permits businesses to take full advantage of a data base that can be continually updated from terminals throughout the organization to reflect current information. Through MACS, the business manager can control inventory, customers' credit, receivables, cash requirements, and other factors critical to profitable operations. Thus, MACS enables the manager to make accurate decisions based on current information.

The system builder obtains a fully integrated, business software system which can be adapted to the requirements of distributors, manufacturers, service organizations and other businesses. This is accomplished through the parametric design of MACS. The system builder tailors MACS to each customer's special requirements by filling out a set of forms and entering the data as parameters which characterize the customer's business.

MACS is comprised of the following subsystems:

GLAS — GENERAL LEDGER ACCOUNTING

GLAS maintains all journals, ledgers and subledgers on a double entry basis. As transaction data are entered, GLAS performs validation checks and requires that debits and credits balance for each transaction. When all checks have been satisfied, GLAS posts the data to the appropriate journals, ledgers, and subledgers, thus keeping the data base current at all times. GLAS produces trial balances, journal reports, statements of Income and Expense, and Balance Sheets. The formats of these reports are under the customer's control, GLAS can operate as a stand alone system on the basis of manual journal entries, or integrated into a complete accounting system with input data coming from and results going to the other MACS subsystems.

ORIS — ORDER ENTRY, RECEIVABLES, INVENTORY

ORIS is responsible for all MACS functions related to customer orders. These include

order entry, shipping, invoicing, accounts receivable, statements, the part of inventory control that relates to customer orders and sales analysis. As with GLAS, ORIS is generated by an interactive sysgen procedure in which the builder defines the system by entering suitable parameters. In this way he adapts ORIS to the customer's needs.

ORIS provides for entering, modifying and deleting customer orders and shipping data. It maintains a perpetual inventory which promptly reflects all changes resulting from orders and shipments. Several forms of Sales Analysis report are available.

PIPS — PURCHASES, INVENTORY, PAYABLES

PIPS is a set of programs that implements purchasing, accounts payable and the portion of inventory control that relates to these functions. Purchase order entry is via CRT, and purchase orders may be printed individually or in batches. Inventory inquiry is provided to display all open orders and expected delivery dates. Upon receipt of an order, Inventory, Purchase Order and General Ledger files are updated. In addition to the customary accounting reports, the system produces, on demand, aged reports for cash commitments on open purchase orders and cash requirements on open payables.

PAYS — PAYROLL AND PERSONNEL

PAYS is an on-line system that maintains the data base and performs all MACS functions relating to employee records and payroll. PAYS is integrated with GLAS and maintains General Ledger accounts to reflect payroll activity. A Master Employee File contains extensive information on each employee's work history with the firm, pension plan, vacation and sick time accruals, and earnings and deductions for the current period, current month, current quarter and year to date. Payroll calculation parameters are programmable, based on the company's requirements. PAYS prints timecards, pay checks, and a variety of reports, including Master File Register, Pay Rate List, Deductions and Earning Update Register, Vacation and Sick Leave Register, Payroll Register and History Register.

MODEL	DESCRIPTION	PRICE \$ US	PREREQ	OEM SUB. SERVICE/YR	DISCOUNT GROUP
GLAS	General Ledger Accounting Subsystem	3000	BB	600	12
ORIS	Order Entry, Receivables, Inventory Subsystem	2500	GLAS	500	12
PIPS	Purchases, Inventory, Payables Subsystem	1500	ORIS	300	12
PAYS	Payroll and Personnel Subsystem ⁴	2500	GLAS	500	12

⁴Available September 1979

Stylus™ Word Processing

Readinet Project Control System

Hospitality Industry Processing System (HIPS)

STYLUS provides an easy way to add multi-terminal, shared logic word processing to systems using the IRIS operating system. STYLUS features include:

- Proportional spacing ■ Left and right justification ■ Automatic repagination
- Subscripting and supersubscripting
- Shadow-print and overstrike ■ Headlining and trailing ■ Automatic centering
- Automatic substitution of words and phrases ■ Tabbing and decimal tabbing
- Automatic letter addressing
- Automatic underlining ■ Auto-indexing
- Margin manipulation

Entering and editing are performed through CRT terminals with immediate change to the displayed text in response to editing commands. Through the use of INFOTRIEVE and the IRIS file structures, STYLUS permits the storage and indexing of large amounts of text and other data. Several users can then concurrently select and retrieve selected segments of data to compose proposals, contracts, letters, etc. and direct the automatic insertion of other data such as names from a mailing list.

Up to 32 users can employ STYLUS, MACS and other application packages concurrently. STYLUS operates with any CRT equipped with cursor addressing, line insert and delete, clear to end of line and clear to end of screen. Copy can be directed to a line printer, a letter quality printer or magnetic tape suitable for input to automatic type setting equipment.

READINET combines interactive computing techniques with classical PERT/CPM Time, Cost and Resource calculations to produce a conversational Project Control System.

All interaction with the system is via a CRT terminal with printed reports and analyses available on demand. Projects consisting of any number of activities and events (limited by disc capacity only) and of any length can be processed. Calendar dates are used throughout and 5, 6, or 7 day weeks may be selected at run time, thus allowing a Project Manager to experiment with the effects of changing the working week over successive runs. An unlimited number of holidays may be specified. Multiple Starts and Finishes are allowed

and scheduled dates can be assigned to any event in the network. Optionally, Ending Events can be allowed to "float",

Up to 16 different resource types may be associated with each activity within the network, each resource type having its own unit cost. In addition, each activity can be assigned a non-resource linked cost to cover materials, plant hire, rentals, etc. An optional module allows time card data and real costs to be reported.

HIPS is designed to meet the requirements of most hotels, motels, clubs, restaurants and reservation systems. HIPS includes integrated capabilities for front desk, point of sale and back office operations. HIPS subsystems include:

- **Point of Sale**—Performs all accounting for point of sale terminals. Handles multiple menus and locations.
- **Reservations**—Maintains status on reservations, guests and rooms. Updates files as changes in status occur.
- **Receivables**—Maintains the customer account files, charge purchases, point of sale transactions, balance reports, debits, credits, statements, transfers and updates.
- **Payables**—Maintains vendor account files, purchase order generation, invoice records, credit and debits, transfers and updates.
- **General Ledger**—Maintains master records, posting of G-L entries, details of subsidiary ledger entries, production of statements for receivables and payables, payroll and general ledger activities.
- **Payroll**—Maintains personnel records, employee earnings, payroll and transfer entry updates.

HIPS is available in three basic packages. Package A is designed for hotels of 250 rooms or less, clubs with under 1000 members and a single restaurant. Package B, the standard package, is designed for hotels with 250 to 600 rooms and clubs with over 1000 members. Package C is designed for hotels with over 600 rooms. HIPS is designed and supported by Executive Systems Plus, Newport Beach, California and marketed through Educational Data Systems.

SOFTWARE

POINT 4 AND NOVA-TYPE APPLICATION SOFTWARE

MODEL	DESCRIPTION	PRICE \$ US	PREREQ	OEM SUB. SERVICE/YR	DISCOUNT GROUP
STYL	Stylus Word Processing System	3500	BB	700	12
RNET	Readinet PERT Management System	2900	BB	500	12
HIPS	Hospitality Industry Processing System				
	Package A	8000	BB	1600	14
	Package B (Standard)	11,000	BB	2200	14
	Package C	14,000	BB	2800	14

Software Training Software Documentation

SOFTWARE TRAINING

Educational Data Systems conducts regularly scheduled seminars on software products. A training schedule is available that describes course registration information, fees and the scheduled course dates. Complete product documentation is provided as part of each course. Credits toward course fees are provided under the Software Subscription Services. Group training on site is negotiable.

Software courses available include:

IRIS

This three day introduction course presents the underlying concepts and organization of the IRIS timesharing operating system. Each day is treated as an independent unit with the following structure:

Day 1—Using IRIS and Business BASIC

Day 2—System Management: Configuration, Operation and Maintenance

Day 3—IRIS architecture, Extensions and System Programming

ADVANCED PROGRAMMING

Designed for the Business BASIC programmer with some experience under IRIS. Language, system and file capabilities are discussed with a view to optimizing and maintaining applications software and utilizing system capabilities.

MANAGEMENT, ACCOUNTING AND CONTROL SYSTEM (MACS)—Series 1 & 2

Series 1: GLAS, ORIS, PIPS AND PAYS set up, including sysgens and initializations directed to modeling a MACS system, establishing system parameters and codes, and building the user data base.

System cut-over and operations plans are developed. Each subsystem is discussed as an entity. On the last day, the full MACS system is reviewed.

Series 2: This second MACS course reviews Series 1 subjects specifically related to OEM system utilization. System interactions and performance oriented fine-tuning are discussed.

INFOTRIEVE/INFORMAT

Generating the Infotrieve/Informat system—Reviewing the Infotrieve User's and Manager's Manuals and the Informat Reference Manual. Exercises in describing reports to Informat and running them.

READINET

A one-day seminar covering installation, network setup and day-to-day updating and reporting. The structure and facilities of the package are discussed in detail and a considerable portion of the seminar is devoted to "hands-on" use of the Package via on-line terminals.

STYLUS WORD PROCESSING SYSTEM

The seminar covers system installation procedures, system capabilities and suitable applications. Included are operation demonstrations and a review of the manual organization.

Software Documentation

MODEL	DESCRIPTION	PRICE \$ US	DISCOUNT GROUP
1017	IRIS User's Reference Manual	15	30
1018	IRIS Manager's Reference Manual	15	30
1039	INFOTRIEVE/INFORMAT Manual Set	20	30
1031	GLAS Manager's Manual	7	30
1032	GLAS User's Manual	7	30
1033	GLAS System Generation and Installation Manual	7	30
1041	ORIS User Reference Manual	10	30
1042	ORIS System Generation and Installation Manual	7	30
1047	PIPS System Generation and Installation Manual ⁵	7	30
1048	PIPS User Reference Manual ⁵	10	30
1049	PAYS System Generation and Installation Manual ⁶	7	30
1050	PAYS User Reference Manual ⁶	10	30
1051	READINET Project Control System User Reference Manual	10	30
1052	STYLUS Word Processing System User Reference Manual	10	30
1053	HIPS Operations Reference Manual	15	30
	Educational Data Systems Product Catalog	—	NA
	Educational Data Systems Binder (2")	8	NA

⁵Available July 15, 1979

⁶Available October 1, 1979

Software Agreements and Services

OEM SOFTWARE LICENSING AGREEMENTS

Educational Data Systems licenses its software products to OEM customers, system houses and other multiple users. Two OEM licenses are available: a Blanket Agreement and a Staircase Agreement.

Both agreements have a term of twenty-seven months and both call for an initial fee which covers a one year IRIS Subscription Service (see Software Subscription Services) and provides the Licensee an initial IRIS installation (IRIS, BB, EDT, ASM, BSC and XREF from the Price List). Other software items, media such as disc packs, and installation services are charged separately.

The Blanket Agreement provides a fixed discount level based upon a specified level of installations by the Licensee during the term of the agreement. EDSI reviews the Buyer's performance at six month intervals during the term and adjusts the discount level to reflect the actual performance of the Licensee. EDSI does not bill back for unrealized expectations of the Licensee but encourages realistic order projections.

The Staircase Agreement provides for discounts as earned by actual orders from the Licensee. Increasing numbers of orders received and acknowledged by EDSI provide for increasing discount levels.

At the option of the Licensee, the Staircase Agreement may be renewed once as a Blanket Agreement. Under the renewal, prices are standard EDSI prices at the time of the renewal, and discounts are at the maximum level achieved by the Licensee under the Staircase Agreement.

All EDSI software is protected by a Pico-N protection device which must be installed on the back plane of the computer in order for the software to operate. The device is designed to protect both EDSI and the Licensee against unauthorized distribution of their software. One version of this device is used to protect system software and a second version (Pico-NA) to protect system and application software. EDSI provides a Pico-N for each computer for which the software is authorized. There is no charge except for the software license fee, and the device remains the property of Educational Data Systems.

Software licensing fees are invoiced at the time a Pico-N is shipped to the Licensee and cover all software products to be used with that Pico-N. If additional software products are added later, they are invoiced at that time.

SOFTWARE SUBSCRIPTION SERVICES

A one year software subscription service is available for each software product or group of products. The subscription fees are specified by the price list in force at the time the customer subscribes.

The software subscription services provide an effective means for maintaining and upgrading the software covered by the service. Subscribers may call or write EDSI for technical information relating to the software or to report a bug. EDSI will repair all bugs reported by a subscriber during the subscription period. This may be accomplished by a Software Change Order (SCO) or as part of a new revision or release.

All subscribers are eligible to receive all SCO's and new revisions and releases. This does not include new products which may from time to time be added to EDSI's price list as separate items. SCO's are sent to all subscribers without charge. New revisions and releases are announced in advance, and all subscribers are encouraged to adopt the latest revisions or release. EDSI normally charges a fee for new revisions and releases, set to cover production costs but not developmental costs.

OEM customers are responsible for all distribution and support of software to their customers, unless the customers themselves become subscribers.

Each one year subscription includes credits for a specified number of days of training at regularly scheduled seminars. Subscribers receive notification of seminars, of new documentation and of new or revised software as well as technical and application notes.

If travel is required by EDSI personnel in connection with software subscription services, travel and living expenses are charged at cost.



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